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2012
Beef and Sheep Report

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1.1 Beef and Sheep Report 2012 – Foreword from the editor

Thanks to all partners, sponsors and team members of *agri benchmark* Beef and Sheep for your commitment and your contributions to the 2012 season!

New countries

The Maghreb states **Algeria, Morocco** and **Tunisia** as well as **Russia** are new network members. Visits to these countries, training sessions as well as common data collection and analysis were performed. The partners reported about their countries' production systems, their drivers and perspectives in the Beef and Sheep Conference 2012.

Projects

The Thünen Institute as well as *agri benchmark* partners are using the network's infrastructure and data to assess compliance costs with regulations in the field of environment, animal welfare and food safety in a two year **EU-project**.

The **FAO** is helping by funding the linking and capacity building of **North African** countries and partners, the German Ministry of Food, Agriculture and Consumer Protection (**BMELV**) is supporting a project for the integration of **Ukraine, Russia** and **Kazakhstan** into the network.

Initiatives

agri benchmark aims to expand activities, partnerships and analysis in **developing** and **emerging** countries while maintaining and improving the data base generated with the existing countries and commercial production systems.

A few steps on this track have already been taken. Beginning with a side event at the 37th session of the Committee on World Food Security (**CFS**), links were established with the FAO initiative World Agricultural Watch (**WAW**). *agri benchmark* is now a member of the International Meat Secretariat (**IMS**) and the IMS is an institutional partner of *agri benchmark*. Via IMS we became involved in the FAO **Livestock Dialogue**, a multi-stakeholder, global initiative on sustainable meat production. At present, we are working on identifying pilot projects for the above initiatives.

New branches and tools

agri benchmark is extending into **three new branches:** Horticulture (incl. wine), Pig and Poultry as well as Organic Farming. This and the above initiatives require a common tool for data collection, analysis and the presentation of results which is under development. In the meantime, the existing result data bases were extended with new features.

Beef and Sheep Conferences

The **BSC 2012** was held in South Africa, in the picturesque setting of the Pilanesberg National Game Park. The public Global Forum was held in Pretoria with attendance by 100 decision makers and high-level speakers from South Africa and abroad. The Conference was organised and managed perfectly by our partners André Jooste, Pieter Taljaard, Chrisna van Heerden and their teams (Corne Dempers, Christo Joubert, Walter van Niekerk, Lethea Louw and many others)!

The **BSC 2013** will be held in York, England and is hosted by our partner organisation EBLEX (English Beef and Lamb Executive). We are busy creating a programme which will involve the presentation and discussion of our results, workshops, contributions of local experts and producers, field trips (beef and sheep) and a Global Forum.

About this report

The 2012 Beef and Sheep Report (BSR) has a similar look and size as the 2011 edition but has a slightly different structure and less explanatory text. The focus is on a compilation of global maps, charts and data. The network members opted for this version and authorised the centre to additionally produce drafts of meaningful, topical **articles** and **papers** to be published separately from the BSR. Those seeking more accompanying information should order the BSR 2011 from our website.

Sheep developments

Chapter 5 of this report is dedicated to the results of the Sheep Network. We all owe special thanks to our long-term partner **Lloyd Davies** from Australia. Lloyd has managed the Sheep Network for the last three years and only thanks to his commitment, discipline and his unique humour has he made the evolvement of the Sheep Network possible. Lloyd decided to retire from the job after this year's season and hand over his responsibilities to our partners Ernesto Reyes and Lola Izquierdo. Lloyd, thanks for your patience and for meeting the never-ending demands from the *agri benchmark* centre staff including myself. You earned yourself a free lifetime membership in the Network!

Claus Deblitz

Coordinator
agri benchmark Beef and Sheep

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1.2 Table of contents

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Beef and Sheep Report editors

Claus Deblitz

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agri benchmark – understanding agriculture worldwide

agri benchmark is a global, non-profit network of agricultural economists, advisors, producers and specialists in key sectors of agricultural value chains. We use internationally standardised methods to analyse farms, production systems and their profitability. Our farm-level knowledge is combined with analysis of international commodity markets and value chains. In this way we are able to provide scientifically consistent and soundly based answers on strategic issues to decision-makers in policy, agriculture and agribusiness.

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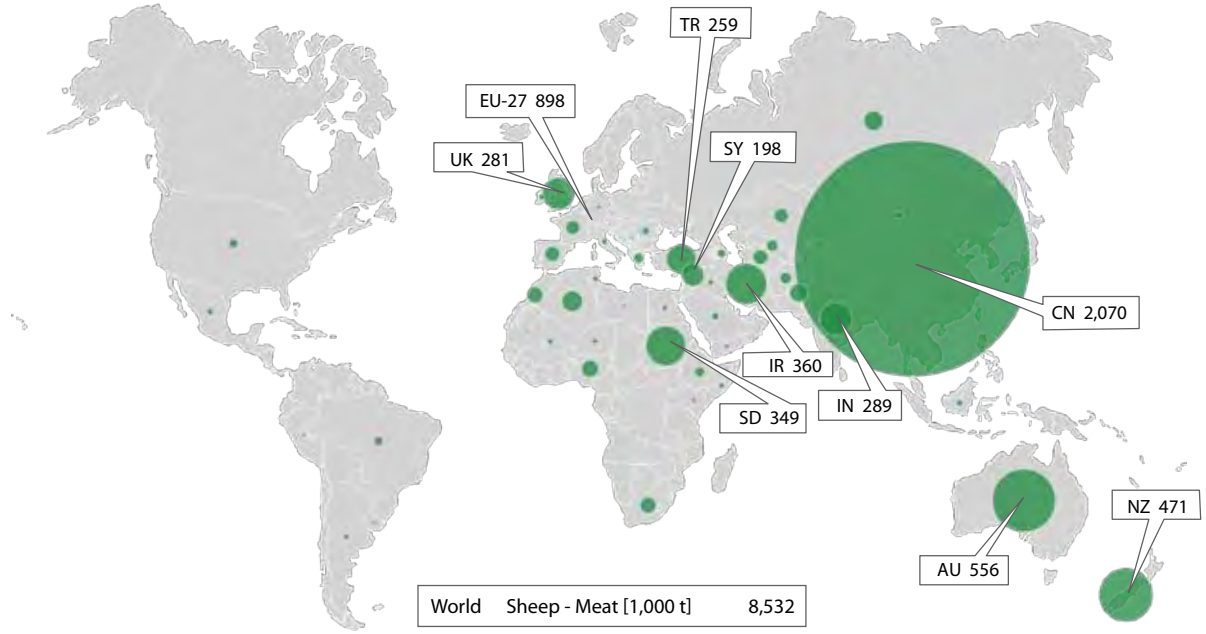
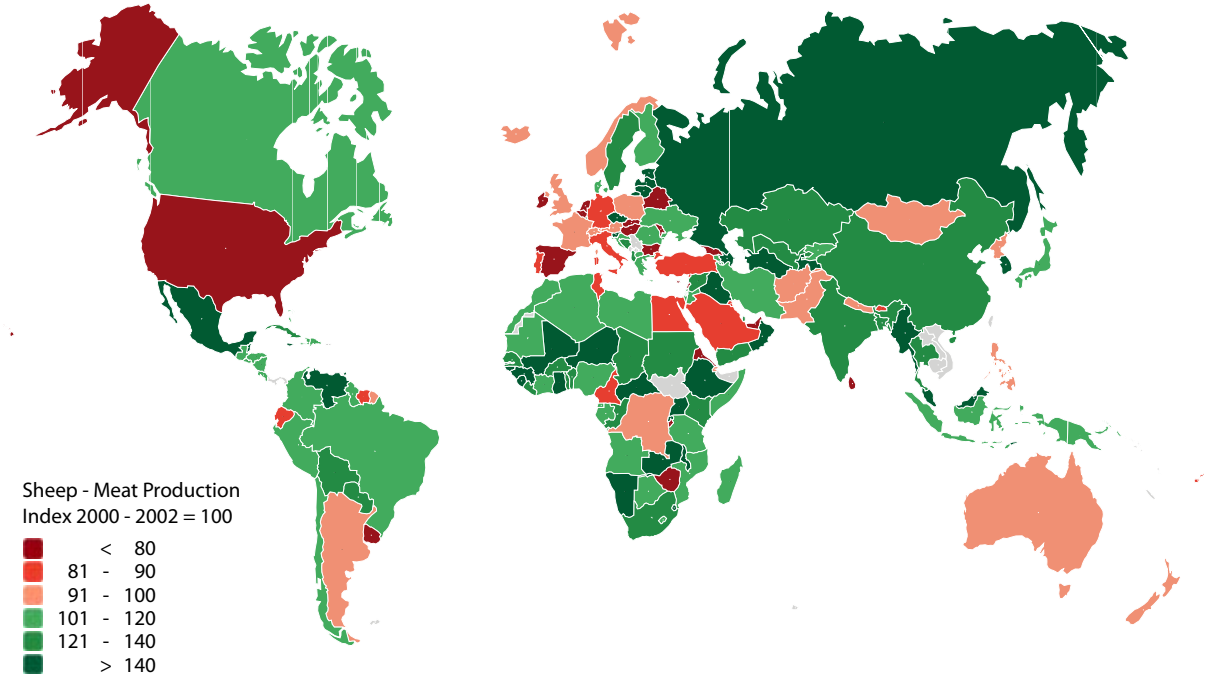
2 Global overview

Global sheep meat production 2010 ('000 t)



Source: FAOStat (2012)

Change in global sheep meat production 2008-2010 vs. 2000-2002 (Index)

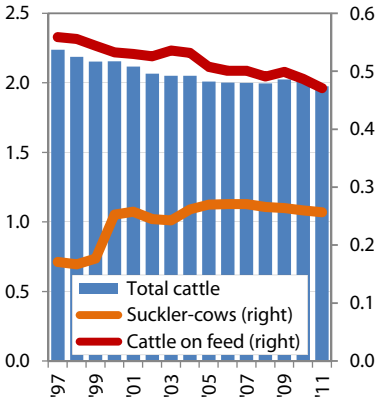


Source: FAOStat (2012)

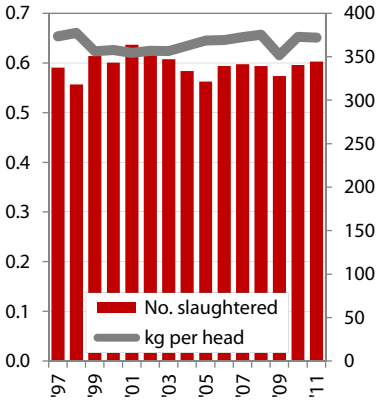
3 Latest developments in global beef production

Production and consumption

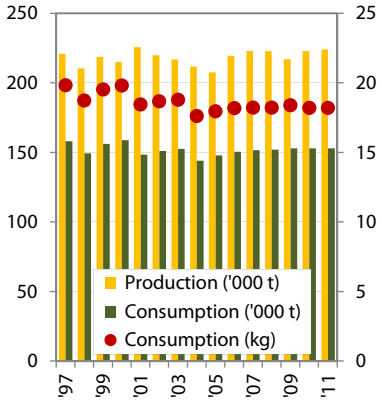
Inventories



Production and weight



Production and consumption



Source: National statistics

Prices (national currencies and USD)

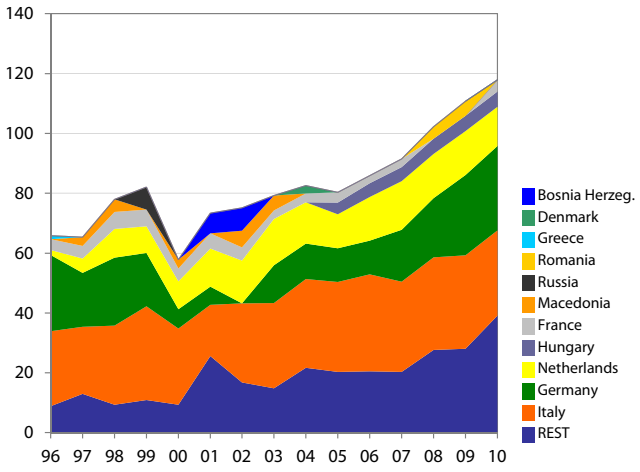
National currency																	'06	'11
Animal category	**Unit**	**'97**	**'98**	**'99**	**'00**	**'01**	**'02**	**'03**	**'04**	**'05**	**'06**	**'07**	**'08**	**'09**	**'10**	**'11**	**vs. '02**	**vs. '06**
Bulls R3	EUR per kg CW	2.75	2.85	2.76	2.81	2.42	2.66	2.68	2.66	2.99	3.10	3.00	3.19	3.12	3.16	3.51	1.17	1.13
Dairy calf Fleckvieh	EUR per kg LW	3.36	4.12	4.21	4.20	3.40	3.94	4.31	4.13	4.32	4.75	4.45	4.30	4.38	4.44	4.68	1.21	0.99
Weaner Fleckvieh	EUR per kg LW	2.03	2.41	2.38	2.49	2.06	2.41	2.61	2.43	2.40	2.55	2.45	2.44	2.48	2.46	2.60	1.06	1.02

Exchange rate	**EUR per USD**	**0.89**	**0.90**	**0.94**	**1.09**	**1.12**	**1.06**	**0.89**	**0.81**	**0.80**	**0.80**	**0.73**	**0.68**	**0.72**	**0.75**	**0.72**	**0.75**	**0.90**

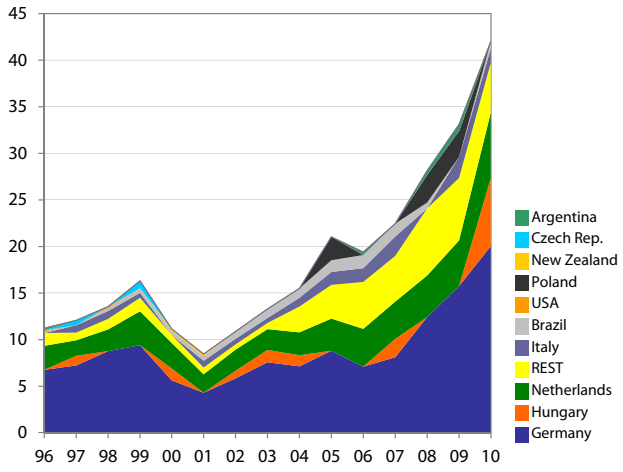
USD																	'06	'11
Animal category	**Unit**	**'97**	**'98**	**'99**	**'00**	**'01**	**'02**	**'03**	**'04**	**'05**	**'06**	**'07**	**'08**	**'09**	**'10**	**'11**	**vs. '02**	**vs. '06**
Bulls R3	USD per kg CW	3.09	3.17	2.94	2.59	2.17	2.51	3.03	3.30	3.72	3.89	4.10	4.69	4.35	4.20	4.89	1.55	1.26
Dairy calf Fleckvieh	USD per kg LW	3.78	4.58	4.48	3.87	3.04	3.71	4.87	5.13	5.37	5.96	6.09	6.33	6.11	5.90	6.52	1.60	1.09
Weaner Fleckvieh	USD per kg LW	2.28	2.68	2.53	2.29	1.84	2.27	2.95	3.02	2.98	3.20	3.35	3.59	3.46	3.27	3.62	1.41	1.13

Source: National statistics

Top 5 export destinations ('000 t)



Top 5 import origins ('000 t)



Source: UN Comtrade

4 International comparison of beef production

4.1 Overview of the cow-calf farms

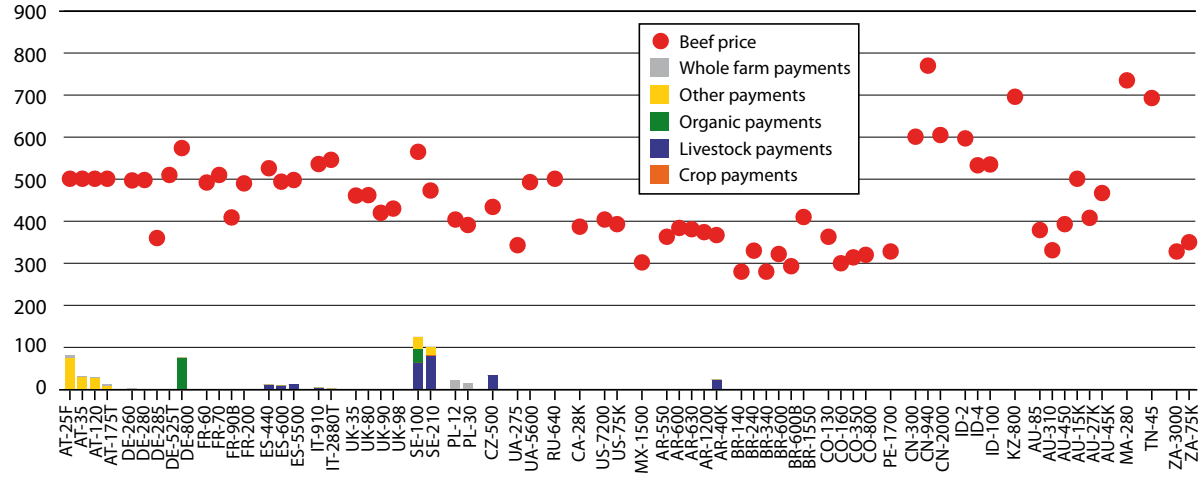
Quantity and types of products (to be continued on next page)

Farm name Cow-calf (1)	Farm name Finishing (2)	Size Mgmt Origin (3)	No. of cows	Region	No. & category of animals sold p.a. (4)	Breeds	Other activities
AT-25C	**—**	A / A / I	24	Kärnten	11 female weaners, 11 male weaners, 4 cull cows	Fleckvieh	Wife 50 % nurse
AT-30	**AT-25F**	A / A / I	27	Kärnten	12 female weaners, 12 male weaners to finishing, 4 cull cows	Charolais * Fleckvieh	Beef finishing, Cash Crops, Mach. Service
DE-100	**—**	A / A / F	100	Westerwald	1 bull, 46 male weaners, 30 female weaners, 15 cull cows	Limousin	Cash Crops
DE-300	**—**	L / A / I	300	Brandenburg	2 bulls, 125 male weaners, 74 female weaners, 43 cull cows	Various	—
DE-1100	**—**	L / A / I	1,100	Mecklenburg - Vorpommern	10 bulls, 161 female slaughter calves, 526 male weaners, 82 cull heifers, 242 cull cows	Charolais + Fleckvieh X	—
DE-1400	**DE-800**	L / A / I	1,424	Mecklenburg - Vorpommern	12 bulls, 341 female slaughter calves, 134 female weaners, 681 male weaners to finishing, 178 cull cows	Char / Lim / Angus	Beef finishing
FR-80B	**FR-60**	L / A / P	78	Pays de la Loire	1 bull, 2 female weaners, 34 male weaners to finishing, 8 heifers to finishing, 11 cows to finishing	Charolais	Beef finishing, Cash Crops
FR-80	**FR-70**	L / A / P	78	Limousin	1 bull, 29 female weaners, 38 male weaners to finishing, 15 cows to finishing	Limousin	Beef finishing
FR-85	**—**	L / A / P	84	Limousin	1 bull, 22 female weaners, 38 male weaners, 15 cows to finishing	Limousin	Beef finishing
ES-80	**—**	A / A / I	83	Santa Eufemia, Córdoba, Andalucía	27 female weaners, 35 male weaners, 7 cull cows	Limousin * Retinta	Iberian pork
ES-150	**ES-600**	L / A / I	155	Guijuelo, Salamanca, CYL	2 bulls, 43 female weaners to finishing, 66 male weaners to finishing, 6 cull cows, 14 cows to finishing	Crosses	Beef finishing
UK-40	**UK-35**	A / A / I	33	Suffolk	1 bull, 10 female weaners, 15 male weaners, 5 cull cows	Limousin cross	Beef finishing, Cash Crops, Lease hunting
UK-100	**UK-80**	A / A / P	100	Yorkshire	1 bull, 41 female weaners to finishing, 41 male weaners to finishing, 18 cull cows	Continental crosses	Beef finishing
UK-105	**—**	A / A / I	106	South Yorkshire	1 bull, 38 female weaners, 51 male weaners, 13 cull cows	Limousin cross	—
SE-95	**SE-100**	A / A / P	95	Sävjö kommun, Småland	1 bull, 37 female weaners to finishing, 47 male weaners to finishing, 14 cull cows	Charolais crosses	Beef finishing
CZ-420	**—**	A / A / I	420	South Bohemia	138 male weaners, 51 male weaners to finishing, 48 female weaners to finishing, 1 cull heifer, 50 cull cows	Angus	Beef finishing
UA-295	**UA-5600**	A / A / I	294	Kyiv	134 male weaners to finishing, 81 breeding heifers, 29 cull cows	Angus, Simmental, Poliska	Beef finishing, Dairy, Cash Crops
UA-410	**UA-275**	L / A / I	410	Lviv, Jovkva	15 female weaners to finishing, 179 male weaners to finishing, 98 breeding heifers, 41 cull cows	Limousin * Volinska	Beef finishing, Dairy, Cash Crops

(1) Number refers to average suckler-cow inventory per year.
(2) Number refers to total finished cattle sold per year.
(3) Size (**A**verage, **L**arge) / Management (**A**verage, **T**op) / Origin (**I**ndividual, **P**re-Panel, **F**ull Panel).
(4) Includes all animal sales of the cow-calf enterprise: slaughter cattle, weaner calves, breeding cattle. Transfers to the own beef finishing enterprise included.

4.3 Beef prices, gov't payments and livestock prices 2011

Beef returns and government payments (USD per 100 kg carcass weight (CW) sold)



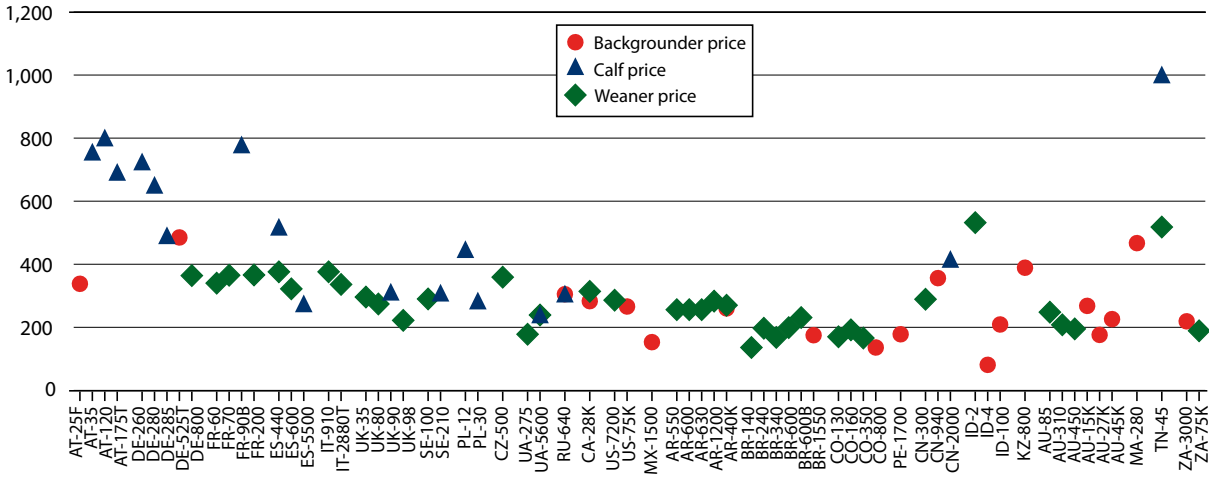
Key findings

- Highest prices are found in Asia and North Africa.
- Prices in farms from Canada, U.S., Australia, Argentina and Poland are on the same level.
- Prices for dairy cattle of Holstein and other dairy breeds are generally lower than those for dual purpose or beef breeds.
- Coupled direct payments can be considered negligible.
- In the course of time, price differences between EU and non-EU countries became less. Main reasons are price and cost increases as well as appreciation of local currencies against the USD in non-EU countries.
- With the exception of dairy breeds, beef and livestock prices show a similar pattern between the countries.

Explanations

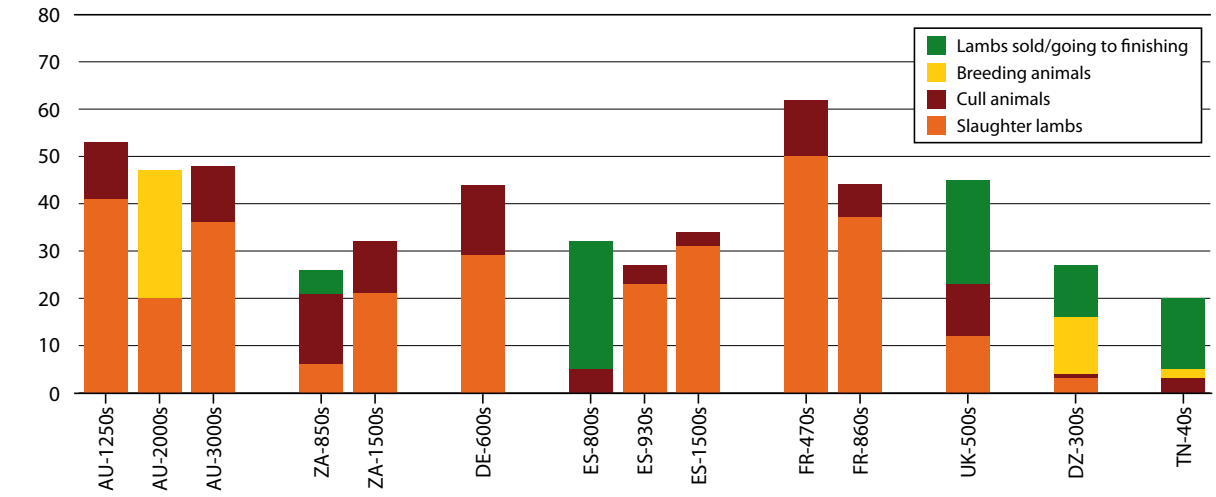
Note Only coupled payments (per head payments) are shown here; decoupled payments are accounted for on whole-farm level.
(Dairy) Calf Young animal from dairy between seven and 50 days.
Weaner (calf) Animal between 180 and 350 days coming from cow-calf.
Backgrounder Animals between 145 and 500 days beyond the calf-/weaner stage which had an initial fattening phase.

Calf and feeder prices (USD per 100 kg live weight (LW))

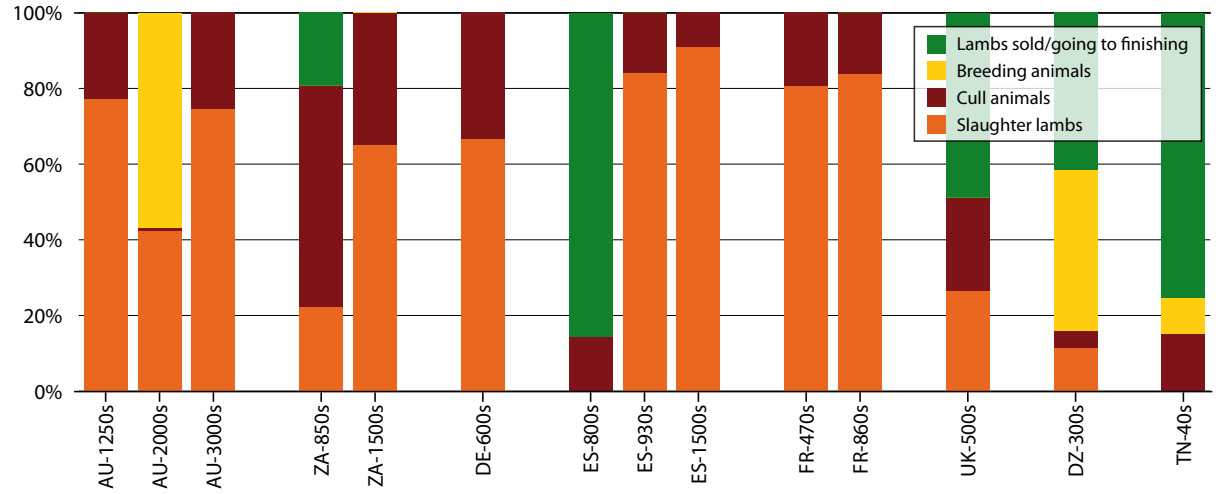


5 International comparison of sheep production

Total live weight sold per ewe (kg live weight per ewe)



Total live weight sold percentage composition (%)



A Annex

A.3 Conceptual background information

Introduction

This section provides a basic description of concepts and methods used by *agri benchmark*. For details please refer to our website or contact us directly.

Cow-calf and beef finishing

We compare both cow-calf (suckler-cow) (Chapter 3) and beef finishing (Chapter 4) production systems. The data base consists of **typical** farms (see below).

The **cow-calf** enterprise starts with the birth of the calf and ends with the day of weaning. The output of the cow-calf enterprise is measured in total live weight sold and comprises weaner calves, cull animals and breeding animals.

The **beef finishing** enterprise (also called finishing enterprise) starts

- when dairy or weaner calves or feeder cattle (backgrounder, stores) are **bought** from outside the farm,
- when dairy or weaner calves or adult animals are **transferred** from the dairy or cow-calf enterprise to the beef finishing enterprise in the same farm.

The output of the beef finishing enterprise is measured in carcass weight sold and comprises all animals which are **exclusively** reared **for slaughter**: bulls, steers, heifers, calves or cows. It does **not** include cull animals from a dairy or a cow-calf enterprise on the same farm.

Which animal categories are compared in the beef finishing comparison?

The following types of animals are compared:

- Animals finished for meat **export**, animals which can potentially be exported in the future or animals from which the meat is a domestic substitute for beef imports from other countries.
- **Final products**, i.e., finished animals that go to slaughter (not backgrounders).
- **Heavy male animals** (bulls or steers), as these categories can be better compared than males with females or even with calves.

In the future, with more farms and more production systems, **subgroups** could be formed for a comparison of specific meat products like heifer meat.

How do we define a typical farm?

A **typical farm** is defined as

- being an existing farm or a data set describing a farm,
- being in a specific region which represents a major share of output for the product considered,
- running the prevailing production system for the product considered,
- reflecting the prevailing combination of enterprises as well as land and capital resources,
- as well as the prevailing type of labour organisation.

The typical farms are never averages of survey data because averages do not provide consistent production system data sets. They are the result of a **panel** meeting with 4-6 farmers and an advisor, where each figure is obtained in a consensus **or** are based on individual farms which were '**typified**' by replacing farm individual particularities by prevailing characteristics, figures, technologies and procedures.

How is the typical farm data collected?

A **Standard Operating Procedure** (SOP) is used to define typical farms in different countries and regions. Basically, the following procedure is applied:

- Select regions and locations
- Identify the prevailing production systems
- Identify the relevant farm population
- Define the size and management level of the typical farms
- Collect, cross-check and update data

Farm data are always collected on **whole farm** level and overhead costs are assigned (allocated) to the enterprises. A paper on the SOP as well as a description of each farm is available on our website.

Collection of data on whole-farm level

All data of typical farms are collected on **whole farm** level and for **all enterprises** present. Thus, our data sets provide much more than just enterprise budgets. Examples are:

- A combination of **cash crop** production and **beef finishing** (like in many European countries)
- A combination of **cow-calf** production and **finishing** (like in Argentina and Brazil)
- A combination of **cash crops, dairy** and **beef finishing** (like in the Ukraine)

How do we calculate cost of production?

Once data are collected they are processed with the Excel spreadsheet tools available. As data are collected on the whole farm level, they are broken down into **enterprise** and **animal level** when performing a unit cost analysis (for example cost per kilogram beef produced).

Some costs can be collected on a per animal or per ha basis (for example variable costs per animal or per ha). Other costs are typically available and collected on the whole farm level and need subsequently be **allocated (assigned)** to the enterprises analysed. These are machines and buildings, labour (hired and family labour), land (rented and own) and overhead costs.

Allocation of whole farm cost to enterprises

At present, all whole farm items that can not be allocated 100 percent to the cow-calf and beef finishing enterprise or other enterprises are allocated by the **share** of the respective **enterprise in total returns** (if used by all enterprises) or in **livestock returns** (if used by livestock).

The following table shows the **allocation codes** and resulting **return shares** presently used. The subsequent examples consider the beef finishing enterprise as example. The cow-calf procedure is equivalent.

Allocation codes and allocation factors

1 = Item used for all enterprises Share of beef finishing in total farm returns	
2 = Crop and forage production	
3 = Livestock production general	
5 = Forage production only Share of beef finishing in total livestock returns * share of livestock in total farm returns	
4 = Cash crop production only	0 % to beef finishing
6 = Dairy only	0 % to beef finishing
7 = Cow-calf only	0 % to beef finishing
8 = Beef finishing only	100 % to beef finishing

Examples for **items** that go **100 percent** to the beef finishing enterprise:

- Variable cost of land only used by the beef finishing enterprise (e.g., corn for silage)
- Buildings exclusively used by the beef finishing enterprise (e.g., stables for bulls)
- Staff wages exclusively used by the beef finishing enterprise (e.g., cattlemen)

Examples for **items** that are **allocated** by share in returns:

- All overhead costs on the whole farm level (e.g., accounting, office expenses, fees, farm taxes)
- Machinery maintenance and depreciation used for all livestock enterprises (e.g., grass mower)
- Maintenance and depreciation for buildings/ installations used for all enterprises (e.g., machinery hall)
- Staff wages used for all enterprises (e.g., farm manager)

Labour (per worker's group), land (per crop), machines (per machine) and buildings (per building) can be allocated by inserting the allocation codes shown on the left hand side.

The following presents an example of calculating machinery depreciation for the beef finishing enterprise, using enterprise codes and obtaining return shares as allocation factors.

Total depreciation machinery:	
USD 10,000	

Share of beef finishing	
in total returns	**50 %**
in livestock returns	**70 %**

Depreciation matrix (% of total depreciation):	
All enterprises	**35 %**
Crop and forage production	**20 %**
Livestock in general	**30 %**
Beef finishing only	**10 %**
Cow-calf only	**5 %**

Machinery depreciation of the beef finishing enterprise						
All enterprises	USD 10,000 *	**35 %**	* **50 %**	= USD	1,750
Crop and forage production	USD 10,000 *	**20 %**	* **50 %**	= USD	1,000
Livestock in general	USD 10,000 *	**30 %**	* **70 %**	= USD	2,100
Beef finishing only	USD 10,000 *	**10 %**		= USD	1,000
Cow-calf only	USD 10,000 *	**5 %**	* **0 %**	= USD	0
Total				= USD	**5,850**

From enterprise level to groups

Once the whole farm costs are allocated to the cow-calf and beef finishing enterprise, further allocation is required. The herd simulation in cow-calf can cover two different groups (mobs) with separate, individual parameters for each. In beef finishing, up to five finishing groups can be simulated. Any combination of finishing groups and cow-calf mobs can be selected for cost and income analysis. If, for example, a farm has three groups with steers and two with heifers for finishing, the steer groups are selected for comparison.

The costs are treated as follows:

- Whole-farm costs are allocated to each mob / group by share in total weight produced per year. Alternatively, the share in animal numbers or the return shares of each mob / group can be used as allocation factors.
- Annual and lot-wise cost figures are recalculated in daily figures and multiplied with the number of days/year each group stays on the farm.

A.4 Glossary of terms

Calculation flow on whole farm level

Total receipts

+ enterprises incl. coupled gov't payments
+ decoupled payments whole farm level

– Total expenses

+ variable costs enterprises
+ fixed costs whole farm
+ paid wages whole farm
+ paid land rent whole farm
+ paid interest on liabilities whole farm

= NET CASH FARM INCOME

– Depreciation
+/- Change in inventory
+ Interest on savings
+/- Capital gains / losses

= PROFIT, FARM INCOME

– Opportunity costs
+ calculated interest on own capital
+ calculated rent on land
+ calculated cost for own labour

= RETURN TO MANAGEMENT

Physical parameters

Cow-calf (in alphabetical order)

Age at first calving Months of age when heifers have their first calf.

Calving percentage (%) Number of calves alive within 24 hours after birth as a percentage of total cows.

Calf losses (mortality) (%) Number of calves that die between birth and weaning as a percentage of total calves born.

Replacement rate (%) Number of cull cows plus number of cows died as a percentage of total cows.

Total live weight sold per cow and year The sum of weaner weights, proportional cull cow, cull heifer and breeding animals live weight.

Weaned calves per 100 cows and year Number of weaners weaned (No. born minus losses).

Beef finishing (in alphabetical order)

Age at start and end Age in days when animals enter and leave the system.

Daily weight gain (g) Weight at end minus weight at start divided by duration of fattening period and reflecting losses.

Dressing percentage (carcass yield) (%) Carcass weight divided by live weight when finished animals are slaughtered (weight at slaughterhouse).

Finishing period Number of days animals stay in the system (age at end minus age at start).

Weight added Total weight added during fattening period in kg LW.

Weight at start and end Live weight when animals enter and leave the system.

Cost structure used for cost analysis

Factor costs Cost for the production factors labour, land and capital. Details below.

Non-factor costs All expenses which are not factor costs plus depreciation.

Cost structure used for profitability calculations

Cash costs All expenses that were paid for including wages, rents and interest payments.

Depreciation Linear depreciation on machinery and buildings, calculated on replacement values.

Opportunity costs Calculated wages for family labour, calculated land rents for own land (opportunity cost), calculated interest for equity (non-land assets).

Labour

Wages paid Gross salary + social fees (insurance, taxes, etc.) the employer has to cover for permanent and casual employees.

Opportunity cost labour Calculated wage for family labour; either off-farm salary or farm manager salary.

Labour cost Wages paid (costs for hired labour) + opportunity cost.

Labour productivity Kilograms of beef produced per hour of labour allocated to the enterprise.

Land

Land rents paid Rental price per ha for existing contracts.

Opportunity cost land Rental price per ha for new contracts.

Land cost Rents paid + opportunity cost.

Land productivity Kilograms of beef produced per ha of land allocated to the enterprise.

Capital

Own capital (equity) Total assets excluding land, quota and cash on hand plus circulating capital less total liabilities as defined above (min=0).

Liabilities Sum of current loan value of short, medium and long term loans as well as operating loans.

Interest rates For equity the same interest rate of 3 % for all countries is applied. Interest payments are calculated with the interest rate paid by each typical farm.

Capital cost Interest paid + opportunity cost.

Capital productivity Kilograms of beef sold per 1.000 USD capital input (non-land assets) on the farm.

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